

2023/2024 PROJECT SUMMARY WINNERS

1. **Cochrane High School** *Cochrane*

ROAMS CAPSTONE PROJECT | **\$2,500**

“ROAMS (Rivers, Oceans, and Mountain School) is a program for 10th grade students, where they spend all day, every day, with the same group of students and the same teacher. Using the knowledge they’ve gained over their 15-16 years of life and our time in ROAMS, students tackle a Capstone project and try to answer the following questions: What does a healthy community look like? How can we contribute to a healthy community? Where do my passions and gifts meet the needs of the world?”

Every year, there have always been students who think that a healthy community considers alternative energy sources. Examples from previous years and this year: building an electric bike, designing/building a wind turbine, up-cycling used vegetable oil for use as diesel, researching and implementing solar projects, implementing and promoting a week long bike to school week, upcycling materials so there is less energy used to re-make items, creating awareness of climate change issues brought on by burning of fossil fuels, designing passive solar greenhouses.

The A+ For Energy funds will be used to support some of the tools and materials needed for these energy projects. As a culmination, these students will present their projects at ROAMS Fest in June to a group of aprox 300 community members, and will also document their journey through photography and videography.”

2. **Crestwood School** *Medicine Hat*

ENERGIZING EDUCATION: A STEM ELEMENTARY SCHOOL'S CLASSROOM GREEN INITIATIVES | **\$3,500**

“Crestwood School Elementary is entering a pilot to build a STEM-focused program within our school for the upcoming school year. We aim to educate our students and foster their passion for science, technology, engineering, and mathematics. Through our ‘Energizing Education’ project, we will use technology including Micro-bits to code indoor aeroponic gardening and iPads to measure and track our energy consumption.

Additionally, we will implement classroom green initiatives to further educate our students and instill sustainable practices in our school community, including promoting energy efficiency and hosting workshops to teach students how to recycle properly and use eco-friendly products. We will also hold energy conservation campaigns to motivate students to take action and adopt eco-friendly practices.”

3. **Divine Mercy School** *Calgary*

HEALTHY HUMANS; HEALTHY EARTH - HOW CAN WALKING, BIKING & ROLLING TO SCHOOL SAVE OUR PLANET AND OUR HEALTH!? | **\$1,390**

“Students will take an inquiry approach to the topic of active transportation and create materials to present to the school community to teach about a topic they are passionate about while answering the guiding question: ‘How can biking, walking, and rolling to school save our planet and our health?’

Students will be creating various advertising projects to present to the school on the benefits – both physical and environmental – of biking, walking, or rolling to school. Advertising will include large outdoor posters displayed for the community on side of the building/fencing, commercials to promote walking to school, painting designs on the sidewalk to encourage parking and walking a short distance, hosting a bike rodeo, raising funds for more bike racks, and participating in Ever Active Schools’ residency.”

4. **Dixonville School** *Dixonville*

DX ACTIVE SOLAR GREENHOUSE | **\$5,000**

“Dixonville School is a small rural school located in a community driven by agriculture and 4-H values. It is our goal to have our school represent those same values. We would love for our first project to be creating a garden/greenhouse area where students will plan out, build and plant the garden at the end of this school year and power it with solar energy.

With a solar greenhouse, planting and harvesting can begin earlier in the year, and be continued throughout summer. Students will be responsible for caring for and watching the garden throughout the summer. In September, the students will harvest the garden and create a market where they can sell the produce.

This is important to both the school and community as the closest grocery store to the community is a 30 minute drive away. This will be a hands on project that will directly teach students about renewable energy. With the greenhouse, students will first hand get to experience, investigate and evaluate how solar energy can be converted into different forms of energy for every day use.”

5. Foothills Academy Society *Calgary*

WIND POWER - PAST, PRESENT AND FUTURE | \$4,925

“Students will learn about the history of wind power in Alberta, what current wind power operations exist in our province as well as how to design and build their own wind-energy capture technology (using Lego Education Spike Prime Sets). This project will focus on our students’ understanding of how wind power works and how it was developed, allowing them to have real-world context for when they build their wind-energy capture models.

By capitalizing on a year-long project that has numerous touch points, scheduled revisiting of the design and building of a wind capture system, and engaging with outside experts in this field, this project will increase the capacity of our students both in their STEM subjects and in their other school subjects as it creates a foundation of success through multi-modal, self-editing and revising projects as new information is integrated by the students.”

6. Harry Collinge High School *Edmonton*

WINDS OF CHANGE: USING 3D PRINTERS TO DESIGN WIND TURBINES | \$4,465

“Students at Harry Collinge High School will use 3-D printers to explore renewable energy. Our grant proposal will focus on the grade nine unit of Electrical Principles and Technologies. Students will use software to design their own blade / configuration for a model wind turbine.

They will then print their model blades using an Ender 3 printer and attach it to a generator. The models will be tested for their energy output and cost will be calculated. Students will then compare their design with the designs of other students and determine the most cost effective model. In addition, our 3-D printers will be used for the Grade Twelve’s in Science 30 as they explore Sustainability and Human Impacts on the Environment.

A similar project to the Grade Nines can be used and expanded upon. Other classes, such as Grade 8, will use the printers to design and build their own cars in the unit on Mechanical Systems. They can then power their cars using solar or hydrogen power hooked up to a motor. They will determine energy transfers and explore efficiency.”

7. High Park School *Stony Plain*

SOMETHING FISHY AT HIGH PARK SCHOOL | \$5,000

“High Park School participates in the Fish in Schools: Raise to Release Program, which raises Rainbow trout to release into a local body of water. In connection with that program, High Park is planning on a second aquarium to create a full self sustained Aquaponics System. Students will be constructing the aquaponics system, learning about the energy requirements and the creating an ‘off the grid’ system to full power the system.”

8. Innisfree Delnorte School

Innisfree

THE POWER OF PASSION PROJECTS | \$2,500

“We are going to give students the opportunity to plan, design, and execute an energy passion project of their choosing to help increase student engagement in our school. These passion projects will have a STEAM component and be directed at reducing the overall carbon footprint of our school and/or community.

Potential projects include using solar panels to collect energy for our greenhouse, using wind turbines to power a phone charging station, using pedal bikes to generate electricity, using a 3-D printer to create a net-zero self watering system for our greenhouse, and creating a compost system. For the culmination of this project, we will have our students present their innovative ideas to the school and to the community at an end of year gala.”

9. Medicine Hat High School

Medicine Hat

PEDAL TO POWER | \$5,000

“We would like to purchase, develop and implement pedal charging generator stations into both built-in common spaces in the school as well as have some that can be transported and available to staff for utilization in curriculum, instruction and professional development.

These devices can help to enhance staff and student understanding of energy generation as well as enhance the health and wellness of all stakeholders involved. The built in Pedal Powering Stations will be used to offset energy consumption by staff and students when charging their electronic devices and tools.

We also have the potential to head to feeder elementary schools and middle schools to educate younger students on the importance of renewable energy. These devices can also be used to compare the amount of energy needed to charge or provide energy to different devices. We could measure the energy use of different electronic devices and compare to the equivalent amount of kinetic energy needed to produce the same output.”

10. Michael Strembitsky School

Edmonton

WHEN IS ZERO ACTUALLY ZERO? | \$5,000

“Net-zero, zero emissions, zero carbon – these terms get thrown around a lot in today’s society but what do they really mean? Which is ‘better’ and why? Students will explore the difference between what it means to be net-zero and what it means to produce zero emissions in order to tackle the complexities around energy use in a variety of scenarios.

After collecting data on air quality in a variety of situations using AirBeams, students will use this as a jumping off point for understanding the challenges for determining whether net-zero or zero emissions strategies are more useful. Researching and developing offset strategies, while also building and programming automated devices that will conserve energy (using Smart Kits & Microbits), thereby reducing greenhouse gas emissions will be a key components of this project. Once they have completed their work, they will prepare a proposal which will focus on either net-zero offset measures or emissions reductions strategies and will debate which is the most effective for combating climate change brought on by greenhouse gas emissions.”

11. New Myrnam School

Myrnam

CARRYING OUR LEGACY FORWARD - AN ENVIRONMENTAL STEWARDSHIP STORY | **\$2,806**

“New Myrnam school has been actively promoting environmental sustainability through various student-centered and hands-on energy projects for the past six years. Projects we have completed include converting a school bus into a tiny home, converting golf carts into solar-powered vehicles, and building a hydroponics system. As a continuation of this effort, our students aim to create a series of video documentaries that showcase the impact of our work. Through social media platforms, we intend to share these videos to inspire students worldwide to take up similar projects that focus on energy, sustainability, and community betterment.

12. North Haven School

Calgary

INSULATION POWER | **\$4,005**

“The students will learn about energy efficiency, in particular about the role of insulation in the prevention of heat transfer. They will be exposed to different approaches attempted around the world, including the ones used by Indigenous People. The ultimate goal of this investigation is to identify reasonable ways to reduce our reliance on fossil fuels and consequently to decrease the greenhouse gas emissions. The learners will gain theoretical knowledge about energy/insulation by generating questions; looking for answers by using books, websites, videos; discussing with experts in the energy field and with Indigenous elders; recording / discussing their findings.

Second, they will design experiments by manipulating diverse variables in order to investigate the insulation properties of various materials (using Arckit GO Eco Model House Kits). Third, the students will analyze the data and they will recommend the best ways to insulate our homes by considering diverse perspectives. Finally, the learners will share the knowledge with various audiences.”

13. Notre Dame High School

Calgary

SOLAR POWER AND BEYOND | **\$5,000**

“We are in year 2 of a 5-year journey to design and create renewable energy competence and understanding through hands-on projects created by students. We are starting with small solar projects that will be used by future classes to engage with clean energy technologies. Materials we will be purchasing include solar panels, batteries, inverters, input kits, outputs, and electrical components. Our goal is to have a range of clean energy modules for our classes to use and build on year over year. By creating a classroom with a variety of renewable energy resource projects, we hope to create a learning environment that fosters clean energy stewardship.”

14. Ross Sheppard High School

Edmonton

GO GREEN, GO GARDEN | \$2,721

“Our project is focused on the use of a hydroponic garden system. This project would benefit our school in many ways, such as; enrich high-level learners, challenging students to use critical-thinking in projects, learning about water consumption and energy conservation, understanding how to grow and care for our own plants, using our greens that are grown to add into nutritious snacks for students and using this as an avenue to help regulate students through the calm aspect of gardening. We have seen success through seasonal gardening and would love to introduce year-round gardening into our building.

The project would consist of two main areas: sustainable, environmentally friendly gardening and the use of solar energy. We would purchase a hydroponic garden as well as a solar panel system from a provider, set it up with students, plant our greens and study how the system works. Having solar panels as the energy source would help educate students on how much energy we use in our everyday lives and how that links to climate change. Additionally, the use of solar panels would lower our carbon footprint.

We also plan to update our battery system for our previous grant as our solar power station just doesn't generate the electricity we hoped it would. We will compare and contrast older methods of battery and solar combinations in comparison to newer technology. The new system will incorporate a lithium ion charging station along with an solar array design that allows us to achieve the anywhere solution to making e-biking a sustainable, always attainable way to commute and or adventure!”

15. Rundle College Jr/Sr High School

Calgary

EVERY DROP FOR EVERYONE | \$4,967

“Access to clean drinking water should be a right for every living thing. Availability and sustainable management of water and sanitation for all has been listed as Sustainable Development Goal 6 by the United Nations. And yet, there are communities even within our own country and province that do not have access to a clean source of water. Students in the Grade 8 STEM class will research this issue and how it shows up within our province and country.

They will then learn about the ways in which we measure clean water and the different technologies we can use to provide and/or create clean drinking water. Through learning from the Math 8 and Science 8 curriculum they will learn about water pumps and energy transfer and how we can use the energy given to us from the sun to provide communities with this basic right. They will learn about how solar water purifiers work and then they will create their own versions of solar water purification.”

16. Spruce Avenue School

Edmonton

SPROUTS OF THE FUTURE: AN INNOVATIVE ENERGY PROJECT FOR A SUSTAINABLE WORLD | \$5,000

Our sustainable energy project for junior high school is an exciting initiative that introduces “students to the world of renewable energy sources such as solar, wind, and hydro power. Through interactive activities and hands-on experiments, students will learn how to harness the power of nature and create a more sustainable future.

They will also develop critical thinking and problem-solving skills as they work together to design and build their own mini renewable energy systems, using tools and materials such as solar cells, LED lights, hydroponics, and watering systems.

Our project is not only fun and educational, but also helps to cultivate a sense of environmental responsibility in the younger generation. Join us in empowering the next generation of eco-conscious leaders!”

17. STEM Innovation Academy

Calgary

THE ‘BIGFOOT’ CARBON FOOTPRINT GAME – AND THE FOUNTAIN OF ENERGY | \$5,000

“The purpose of this project is to educate students in the ways in which we all, as individuals, act as consumers of energy and therefore producers of CO₂, and quantify how our day-to-day actions contribute to the global issue of climate change. The ultimate goal is to convey a sense of personal responsibility – and therefore opportunity to change. First, students will explore their own Personal Carbon Footprint (PCF) by estimating their family’s Footprint via the ‘BigFoot’ Game.

Then, students will create an Energy Fountain that will manifest the energy generated by solar panels and a wind turbine in terms of the amount of water flowing up and over a waterfall. Optionally, this might also be extended to power a Hydroponics unit (‘GrowCart’) such that energy could also be manifested as food. Students will be able to measure the total energy (in kWh) generated from the wind turbine and solar panels and convert it to the quantity of CO₂ emissions avoided.

Students will be invited to come up with inventive ways to reduce the carbon footprint of their school building in other ways. Through all of this, the students will have a greater appreciation for alternative energy.”

18. St. John Paul II Catholic School

Grande Prairie

THERE’S NOTHING FISHY ABOUT A FREE (SOLAR) LUNCH! | \$4,705

“Students from our Envirothon Club will create an indoor winter garden that is powered by solar power. They will research and experiment with the solar panel(s) to determine how to produce the highest energy output in order to power grow lights, and eventually a sustainable aquaponics system. The intent is that students will gain insight into how to grow their own food (including nutrient cycles), how to assess water quality, and how to use renewable energy on a small scale for sustainable food production. The food grown from the garden could be donated to the school lunch program, or could be sold as a fundraiser for the Envirothon Club.”

19. St. Joseph Coaldale

Coaldale

GOLF CART CONVERSION: GOING FOR A SOLAR RIP | \$5,000

“Our goal is to take an old golf cart and either convert it from gas to electric, or from electric to tripped out electric (lithium ion) with a solar roof for extra battery life and charging. We plan to tap into our school community to find an old golf cart, and once we have it students will determine the best course of action.

Based on whatever drivetrain it has decisions will be made to make it eco-friendlier. We will also look closely at all moving parts to ensure we are doing our best to minimize inefficiencies like friction, whether lubricating chains or replacing bearing, our goal will be to have a smooth-running machine! When the project is complete it will be paraded around the school ground and utilized for outdoor events like track and field day.”

20. St Martin de Porres

Red Deer

GO GREEN, GO GARDEN | \$2,721

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21. **Strathmore High School** *Strathmore*

CARBON SEQUESTRATION/ NATIVE POLLINATOR DEMO GARDEN | **\$2,218**

“The purpose of this community co-created design is to engage, educate and invite the community to discover the benefits of re-establishing natural systems in the landscape. Native plants are key to restoring this area as they represent resilience and adaptation, and provide ecosystem services such as pollination, water harvesting to their deep roots, habitat for urban wildlife and aesthetic benefit to the students and visitors to the site.

Upon its completion, this area will serve as a demonstration site where folks can discover alternatives to their conventionally landscaped yards and thirsty lawns. These landscapes not only require less energy to take care of but the wide biodiversity present, and deep roots, allow these landscapes to act as more efficient carbon sinks.

Strathmore High School students, staff and community volunteers will be establishing this space and incorporating student designed signage that will communicate both the pollinator and carbon sequestration benefits of this demonstration area.”

22. **Westmount Charter Mid-High School** *Calgary*

2024 MICROBIAL FUEL CELL OLYMPICS | **\$5,000**

“The MFC Olympics aims to inspire mid-high school students to take scientifically sound actions toward addressing climate change. We want to generate greater interest among participants in sustainable energy like the Microbial Fuel Cell (MFC). The MFC is an interesting technique to produce reliable and clean electricity from bacteria that exist in normal garden soil.”

23. **Wheatland Crossing School** *Standard*

GROWING IN THE COOL: USING THE SUN'S ENERGY TO EXTEND OUR GROWING SEASON | **\$5,000**

“Have you ever noticed that the growing season ends when the school year begins and the school year ends when the growing season just gets started? We'd like to change that! With the sun's energy and some sustainable engineering we could extend the growing season to fit the school year. As we grow plants in this new environment we will also be growing students' minds on the uses of sustainable energy.

The students will be involved in the planning and collaborating with a local engineer to design and incorporate a system to provide solar heating to an existing greenhouse at the school. The students will learn about concepts including r-value, insulation and the importance of reducing heat loss, different types of solar power collection, photovoltaic and vacuum tube thermal solar collection, and the electrical components of an off grid solar power system.”